

Traditional and modern turmeric cultivation management in Belgaum district

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ABSTRACT

Turmeric, the golden spice is widely cultivated in different countries such as India, China, Myanmar, Nigeria, Bangladesh, Pakistan, Sri Lanka, Taiwan, Burma, Indonesia etc. Among these countries India occupies first position in area and also in production. In India, turmeric is grown in 18 states, Andhra Pradesh, Tamil Nadu, Karnataka and West Bengal are the major turmeric producing states. Turmeric has been used medicinally throughout Asia to treat stomach and liver ailments. It is also used externally, to heal sores, and as a cosmetic. From each taluka 30 farmers were selected (15 traditional farmers and 15 modern farmers) randomly and two traditional processing units and two modern processing units were selected. Farmer's need was to educate them for cultivation of pest and disease resistant varieties of turmeric, further scientific methods of harvesting needs to be adopted in conventional farmers to get high returns. Labour availability particularly at the time of harvest and cost of labour in general were the serious problems to turmeric grower. Conventional farmers of many farm operations including planting rhizome materials and harvesting would save labour substantially in mechanisations.

KEY WORDS : Turmeric cultivation, Processing cost, Marketing cost, Turmeric cultivation management

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India being the largest producer of turmeric in the world, accounting for 78 per cent of the world production has great potential in this commercial crop. In India, turmeric grown in 18 states and Andhra Pradesh, Tamil Nadu, Karnataka and West Bengal are the major turmeric producing states. Share of turmeric in the total spice exports of India was 29.35 per cent in 2010-2011. India is the largest producer, consumer

and exporter of turmeric.

Turmeric strictly speaking is a condiment crop which has been used for colouring, flavouring and medicinal purposes. Turmeric occupies the prominent position among the spices produced in India.

Turmeric is one of the multi-use products which has many valuable properties and uses. It is extensively used in food, textile, medicine and cosmetic industries. The curry powder is one of the indispensable ingredients in the Indian foods. The curry powder contains minimum five per cent to maximum thirty per cent of the turmeric powder in its total content. Turmeric has colouring property because of the curcumin content, and hence it is used as natural colouring agent for food stuffs, jellies and fruit drinks. The dye made out of turmeric is used in the textile paint and varnish industries.

METHODOLOGY

The present study was conducted in traditional and

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modern turmeric cultivation in Belgaum district of northern Karnataka – A comparative management appraisal, because this district is having highest traditional and modern cultivation of turmeric. From Belgaum district two talukas were randomly selected namely, Athani and Raibag comprising maximum farmers who are adopting traditional and modern cultivation of turmeric. From each taluka 30 farmers, (15 traditional farmers and 15 modern farmers) were randomly selected, two traditional processing units and two modern processing units were selected.

The data required for accomplishing the objectives of the study were collected from primary sources in the year 2012-13. The primary data were used to analyze the objectives of the study. Primary data were collected through personal interview from the farmers with the help of well structured and pre-tested scheduled on turmeric farmers on traditional and modern methods, value addition and marketing efficiency management of turmeric from the sample farmers.

ANALYSIS AND DISCUSSION

Inputs used per acre of turmeric cultivation in the study area are presented in Table 1. It can be observed from the table that, the average per acre utilization of rhizomes was 9.25 quintals. Among the different category of farmers it was the highest in the case of traditional farmers (9.86 q) followed by modern farmers (8.64 q). The average per acre utilization of human labour was 73.27 man days, and the highest labour requirement was seen on traditional category farmers (78.64 man days) followed by modern farmers (67.20 man days). With respect to bullock labour, the highest consumption was seen on traditional farmers (6.59 pair days) and by modern farmers plots (1.96 pair days) and it was 4.28 pair days for the overall category farmers. The highest machine labour was utilized by modern farmers (5.72 hours) followed by traditional farmers (2.33 hours) and on overall category farmers it was 4.03 hours. The most of the traditional farmers used bullock labour in comparison to the use of tractor

Table 1 : Input management and output obtained in turmeric cultivation

					(per acre)
Sr. No.	Particulars	Units	Traditional	Modern	Over all
1.	Rhizomes materials	Qtls	9.86	8.64	9.25
2.	Human labour	Man days	78.64	67.20	73.27
3.	Bullock labour	Pair days	6.59	1.96	4.28
4.	Machine labour	Hours	2.33	5.72	4.03
5.	Farm yard manure	Tonns	2.72	3.74	3.23
6.	Fertilizers	kgs	226.14	196.52	211.33
7.	PPC	Rs.	3459.53	3671.48	3565.50
i.	Total yield (main product)	Qtls.	23.14	27.68	25.41
ii.	Mother rhizome materials	Qtls.	6.23	6.09	6.16

Table 2 : Cost of cultivation in turmeric

							(Rs. per acre)
Sr. No.	Particulars	Traditional	Per cent	Modern	Per cent	Over all	Per cent
I.	Variable cost						
1.	Human labour	13111.65	17.51	11232.70	16.61	12172.17	17.08
2.	Bullock labour	2475.53	3.31	736.51	1.09	1606.02	2.25
3.	Machine labour	932.46	1.24	2288.92	3.38	1610.69	2.26
4.	Rhizome material	35614.32	47.55	31207.68	46.14	33411.00	46.88
5.	Farm yard manure	938.40	1.25	1282.82	1.90	1110.61	1.56
6.	Fertilizers	4319.27	5.77	3753.53	5.55	4036.40	5.66
7.	PPC	3459.53	4.62	3671.48	5.43	3565.51	5.00
8.	Interest on working capital @ 8%	4868.09	6.50	4333.89	6.41	4600.99	6.46
	Subtotal (I)	65719.25	–	58507.52	–	62113.39	–
II.	Fixed cost						
1.	Rental value of land	7250.00	9.68	7250.00	10.72	7250.00	10.17
2.	Land revenue	25.00	0.03	25.00	0.04	25.00	0.04
3.	Depreciation	994.81	1.33	947.30	1.40	971.06	1.36
4.	Interest on fixed capital @11%	909.68	1.21	904.45	1.34	907.07	1.27
	Subtotal (II)	9179.49	–	9126.75	–	9153.13	–
	Total cost of cultivation (I + II)	74898.74	100.0	67634.27	100.0	71266.52	100.0

labour because bullock labour worked out to be cheaper than tractor labour, but modern farmers used tractor for ploughing, harrowing, inter-cultivation and transportation. This may be attributable to accomplishment of quick work and time constraint to cover larger area.

Farmers in the study area used less quantity of farmyard manures, among the various categories. The quantity of farmyard manure (FYM) applied per acre was the highest in the case of modern farmers (3.74 tonnes) followed by traditional category farmers (2.72 tonnes). PPC chemicals used were high on traditional farmers compared to modern farmers. The expenditure pattern on PPC application revealed that it was the highest in the case of modern farmers (Rs. 3671.48) followed by traditional category farmers (Rs.3,459.53). It revealed that there was high amount of application of chemical fertilizers in anticipation of good yield. Pesticides and other PPC chemicals were used to minimize or control the pests.

Table 2 revealed that among the two categories of farmers the total cost incurred by the traditional farmers were highest (Rs. 74,898.74 per acre) as compared to modern farmer (Rs.67,634.27 per acre). This may be attributable to the fact

that traditional farmers used highest rhizome material and applied more fertilizers than their counterparts.

The distribution of pattern of operational cost under various inputs revealed that cost of human labour was highest in the traditional case of farmers of Rs.13111.65 per acre and in case of modern farmers of Rs.11232.70 per acre. Whereas average bullock labour cost was the highest in case of traditional farmers (Rs.2475.53 per acre) followed by modern (Rs.736.51 per acre). Machine labour cost was more in modern farmers (Rs. 2,288.92 per acre) for ploughing and transportation and was seen lower in the case of traditional farmers (Rs. 932.46 per acre). The rhizomes cost was lowest in modern farmers (Rs. 31207.68 per acre) and the highest in traditional farmers (Rs. 35614.32 per acre). The non-availability of FYM is the main problem in the study area. As turmeric responds well with chemical fertilizer so the cost of FYM used ranged from Rs.938.40 (traditional farmers) and Rs. 1282.82 (modern farmers). Whereas the expenditure on fertilizers was the highest (Rs. 4319.27 per acre) for traditional farmers as compared to modern farmers (Rs. 3753.53 per acre). It was also noticed that the highest expenditure on pesticide was seen

Table 3 : Cost and returns of turmeric cultivation in traditional and modern

				(per acre)
Sr. No.	Particulars	Traditional	Modern	Over all
1.	Total cost of cultivation	74898.74	67634.27	71266.52
2.	Total cost of processing	9076.80	6724.20	7900.50
3.	Total cost marketing	4812.43	4073.10	4442.76
4.	Total A+B+C	88787.97	78431.57	83609.77
5.	Gross returns including by-products (Rs./ha)	167765.00	200129.00	183606.50
6.	Net return	78977.03	121697.43	99996.73
7.	Cost of production (Rs./qtl)	3836.99	2833.51	3290.43
8.	Selling price (Rs./ qtl)			
i	Dry turmeric	5500	5800	5650
ii	Mother rhizome	6500	6500	6500
9.	Profit (Rs./qtl)	3413.01	4396.58	3935.33
10.	Yield (qtl/ac)			
i.	Main product	23.14	27.68	25.41
ii.	Mother rhizome	6.23	6.09	6.16
11.	B : C ratio	1.89	2.55	2.20

Table 4 : Marketing cost in turmeric

				(per quintal)
Sr. No.	Particulars	Traditional	Modern	
1.	Transportation charges	16.65 (8.01)	12.86 (8.13)	
2.	Rent on shop & godown	23.79 (11.44)	26.24 (16.58)	
3.	Electricity charges	4.76 (2.29)	8.56 (5.41)	
4.	Value of storage losses	98.39 (47.31)	47.12 (29.78)	
5.	Packing charges	37.42 (17.99)	31.09 (19.65)	
6.	Grading charges	19.47 (9.36)	22.63 (14.30)	
7.	Loading & unloading charges	7.49 (3.60)	9.74 (6.16)	
Total		207.97 (100)	158.24 (100)	

on modern farmers (Rs.3671.48/ac) as compared to traditional farmers (Rs. 3459.53/ac).

For the overall category of respondents, per acre cost of cultivation of Rs.62113.39 of variable cost and remaining was accounted for by the fixed cost items. Irrespective of items of costs, human labour and rental value of the land were the major items of costs. Similar findings were observed from the investigations conducted by Sita Devi and Ponnarasi (2009) who studied on modern rice technologies and its adoption behaviour in Tamil Nadu. The study revealed that per hectare cost of cultivation was about 10 per cent lower in SRI than the traditional method. The similar results were reported by Anil Kumar (2007), who reported the cost of cultivation of ginger was Rs.84, 849.06 per hectare in Nainital area of Uttarakhand.

The highest yield was obtained by modern farmers (27.68 q) followed by traditional farmers (23.14 q). The average quantity of mother rhizome having important use as a rhizome per acre in the study area was the highest in the case of traditional farmers (6.23 q) followed by modern farmers (6.09 q) and overall category farmers (6.16 q). The human labour, fertilizer, rhizomes and bullock labour were the items of cost with major share in the variable costs, because most of the operations like harvesting, planting, seed bed preparation and weeding are human labour intensive operations. The other operations like harrowing and inter-cultivation and bullock labour were intensively used.

The cost and returns of turmeric cultivation which include average yields, selling price, marketing cost and net returns. Table 3 revealed that the per acre average yield of turmeric on traditional farmers (23.14 q) was comparatively lower than the modern farmers (27.68 q) because of improved harvesting methods. Modern farmers got highest price for their produce because they used good post harvesting management which increased the quality of the turmeric. Because of reduced human labour and quick machine labour, the average processing cost of traditional turmeric farmers was Rs. 9076.80/ac as against Rs. 6724.20/ac

of modern farmers. The total marketing cost paid during the period of traditional was Rs. 4812.43 per quintal, and modern farmers of Rs. 4073.10 per quintal.

The return structure in turmeric clearly revealed that the gross returns per acre was higher (Rs. 200129) on modern farmers compared to that of traditional farmers (Rs. 167765) with a positive net return on both the categories of the farmers. The net return of cultivation in turmeric of Rs. 78,977.03 in traditional farmers and Rs. 1, 21,697.43 in modern farmers per acre. The B: C ratio was also higher on modern farmers (2.55) compared to traditional farmers (1.89).

Marketing cost in turmeric :

The marketing cost per quintal of turmeric has been explained in Table 4, marketing cost is the major cost component. The per quintal cost incurred by traditional farmers were seen highest of Rs. 207.97 per quintal in case of modern farmers of Rs. 158.24/q. The major difference in traditional and modern farmers was observed in storage losses and rent on shop and godown. Because of lack of storage facilities the storage losses was seen highest 47.31 per cent and 29.78 per cent for traditional and modern farmers. Rent on shop and godown was the next highest having 11.44 per cent and 16.58 per cent for traditional and modern farmers, respectively. The cost of grading and standardization of turmeric incurred highest share in modern farmers (Rs. 22.63/q) compared to traditional farmers of Rs. 19.47/q. The transportation cost share was seen almost same, having around eight per cent each.

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